

**OPTONICA**

SERVICE MANUAL

RP-2626H



STEREO TURN TABLE

MODEL RP-2626H

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

SPECIFICATIONS

GENERAL

Power source: AC 110/220/240V, 50/60Hz
Power consumption: 5W
Semiconductors: 1-IC

25-transistor
7-diode
2-hall elements
Width: 455mm
Height: 147mm
Depth: 355mm
Weight: 10 kg

Dimensions:
(with dust cover)

Weight:

TURNTABLE

Motor: DC servo motor with 72-pole frequency generator
Drive system: Direct-drive system

Speed: 33-1/3 and 45rpm
Speed control range: Within $\pm 4\%$ (Individual control for 33-1/3 & 45rpm)
Wow & Flutter: $\pm 0.045\%$ (DIN 45 507)
0.03% (JIS C-5521)
Rumble: Better than 68dB (DIN-B)
Turntable platter: 31cm (12in.) aluminum diecast with stroboscope mark:

TONEARM

Type: Static-balance S-shaped pipe arm
Effective length: 210mm
Overhang: 11mm
Off-set angle: 19°
Cartridge weight range: 4 ~ 12grams

Specifications are subject to change without prior notice.

SHARP CORPORATION OSAKA, JAPAN

DESIGNATION OF PARTS

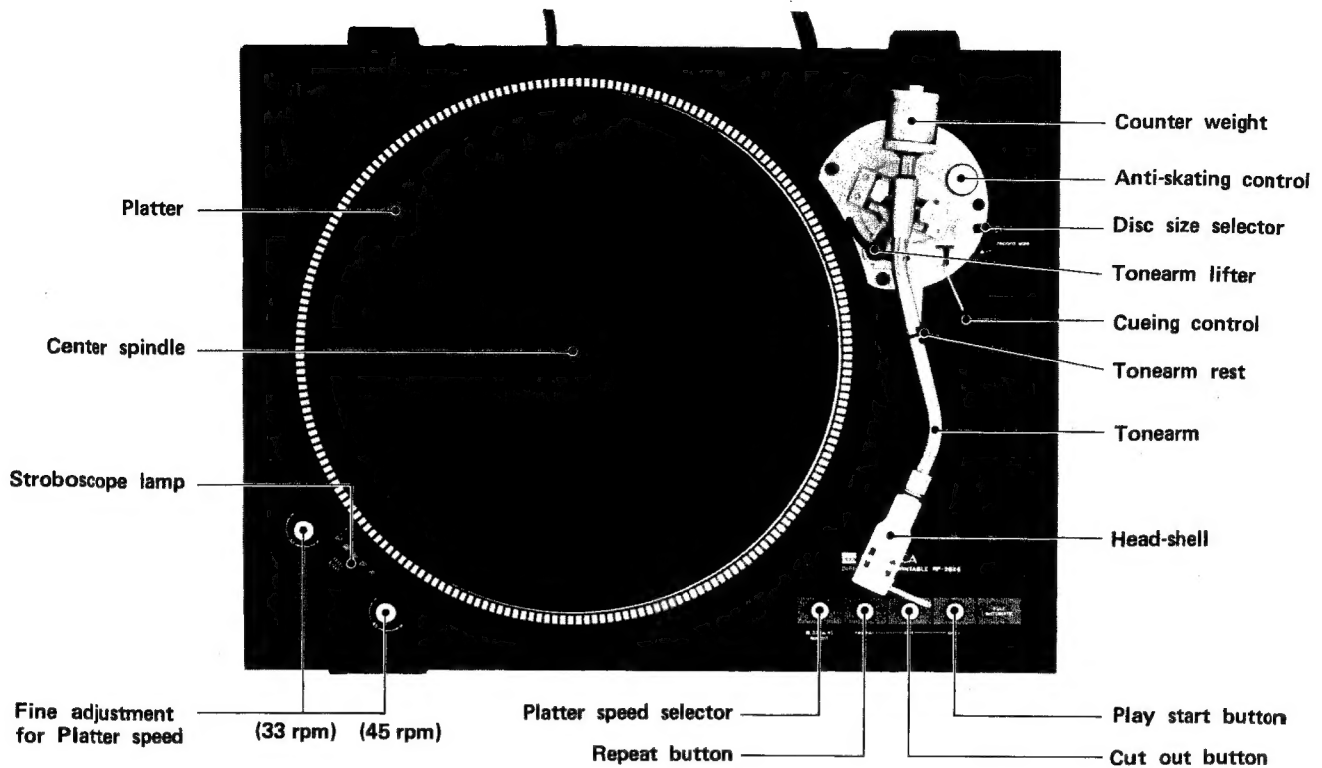


Figure 2-1

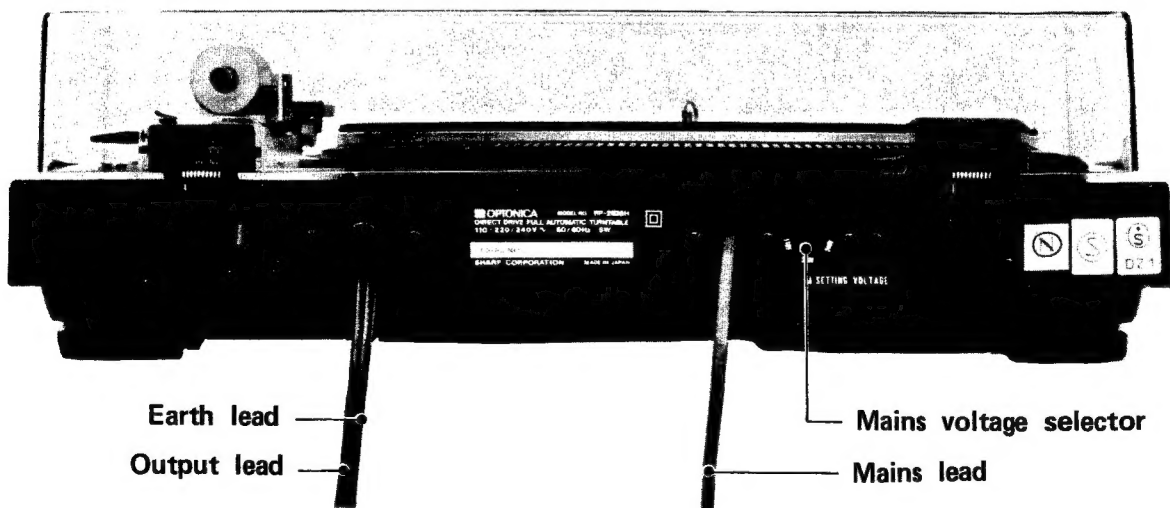


Figure 2-2

DISASSEMBLY

* Disconnect all leads connected to the back of the unit.

1. Remove fourteen (14) screws retaining the bottom cover. (Refer to Figure 3-1)
2. Mechanical parts removal. (Refer to Figures 13-1 and 15-1)

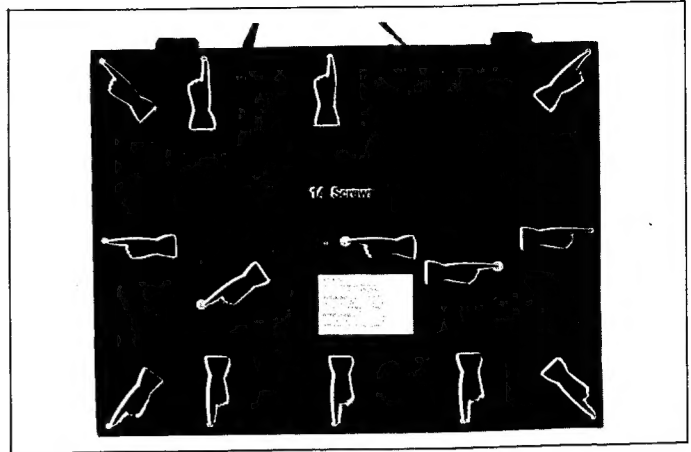


Figure 3-1

VOLTAGE SELECTION

Check the preset voltage before connecting the mains plug to a mains outlet. If the setting is different from your local supply mains voltage, the selector must be re-set as follows. Rotate the selector with a screw driver, aligning the arrow mark to your local voltage number.

Note:

Since this set uses DC motor, the operation is regardless of whether a household power supply is of 50Hz or 60Hz.



Figure 3-2

MOUNTING OF PHONO-CARTRIDGE ON HEAD-SHELL

1. Referring to Figure 3-3, connect the cartridge to the head-shell by use of leads.
2. Provide a distance of 50mm between the stylus end and the rubber packing on the head-shell. (Refer to Figure 3-4)

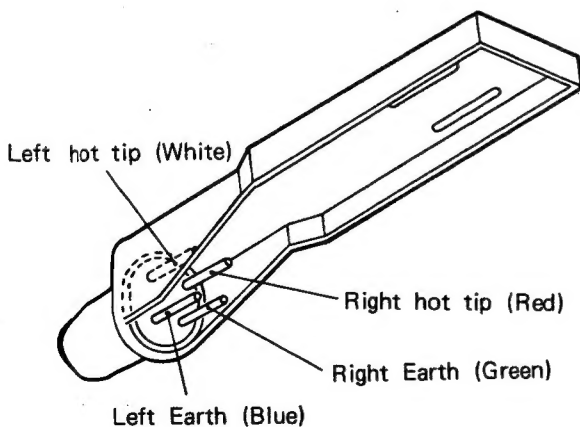


Figure 3-3

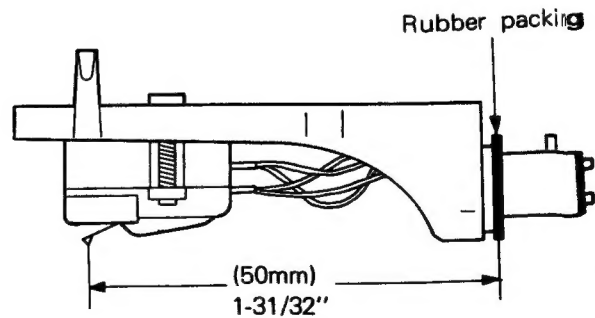


Figure 3-4

BEHAVIORS OF CONTROL CIRCUIT

This control circuit is a frequency generator servo type that detects output of the dynamo synchronizing with the motor

so that this detected output is considered frequency, thereby controlling the speed of a disk to be used.

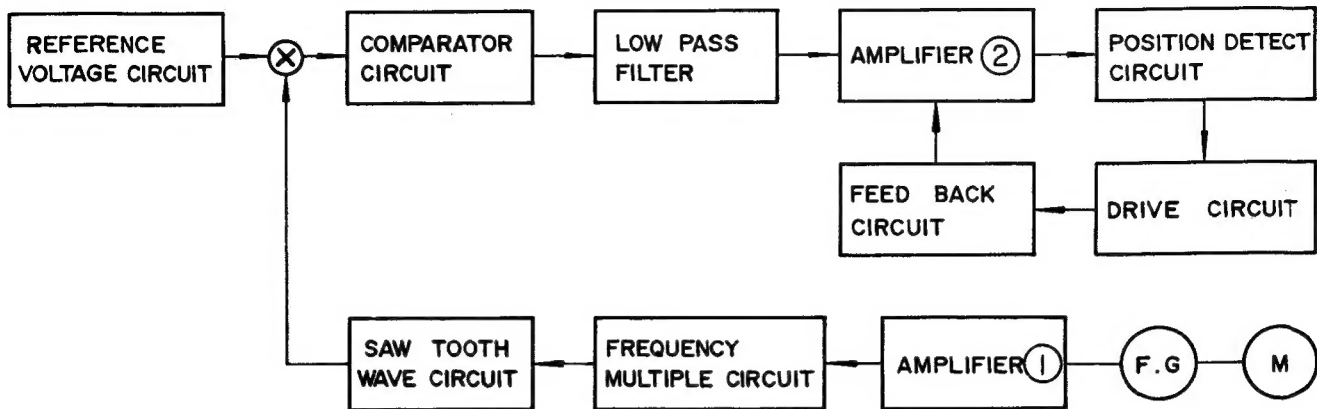


Figure 4-1 BLOCK DIAGRAM

* Refer to Figures 4-1, 4-2 and 5-1.

1) FREQUENCY GENERATOR

The frequency generator consists of 72-pole magnet, 36-tooth multi-gap head and coil and it creates sine waves of 20 Hz and 27 Hz respectively when an LP disk and EP disk are played.

2) AMPLIFIER CIRCUIT ①

The amplifier circuit is of 2-stage differential type and it amplifies the output of frequency generator to produce square wave of 50% duty cycle.

Semi-variable resistor VR1 (330 ohm B) is to adjust the square wave so that its duty cycle becomes 50%; this is because that the output of this circuit will be permitted to be multiplied by the frequency multiple circuit.

3) FREQUENCY MULTIPLE CIRCUIT

The frequency multiple circuit is to differentiate conversion output and non-conversion output (the two are of square wave) obtained from the said amplifier circuit so as to create pulses each having a swifter rising and a narrow width. Each of the pulses is then applied to the switching transistor in which it will be shaped to a saw tooth wave. Each of the switching transistors can be turned on when given a positive pulse so that the frequency be multiplied (doubled).

4) SAW TOOTH WAVE GENERATOR CIRCUIT

The generator circuit is composed of a C/R circuit which serves as charging unit and a switching transistor which works to discharge the voltage stored in the capacitor in an instant, and it is thus able to obtain saw tooth waves with the height being nearly in proportion to a given frequency.

5) REFERENCE VOLTAGE CIRCUIT

The reference voltage circuit is to produce a reference voltage that determines the rotation number of motor, in which output of the voltage regulated circuit is resistor-divided to be made a constant voltage. Variable resistor is provided to permit the voltage-division ratio be varied, thereby the motor's rotation number being variable.

Waveforms of the Circuits (with DC 20 V)

(The points A to H are identical to those indicated in the annexed "Circuit Diagram" Figure 5-1.)

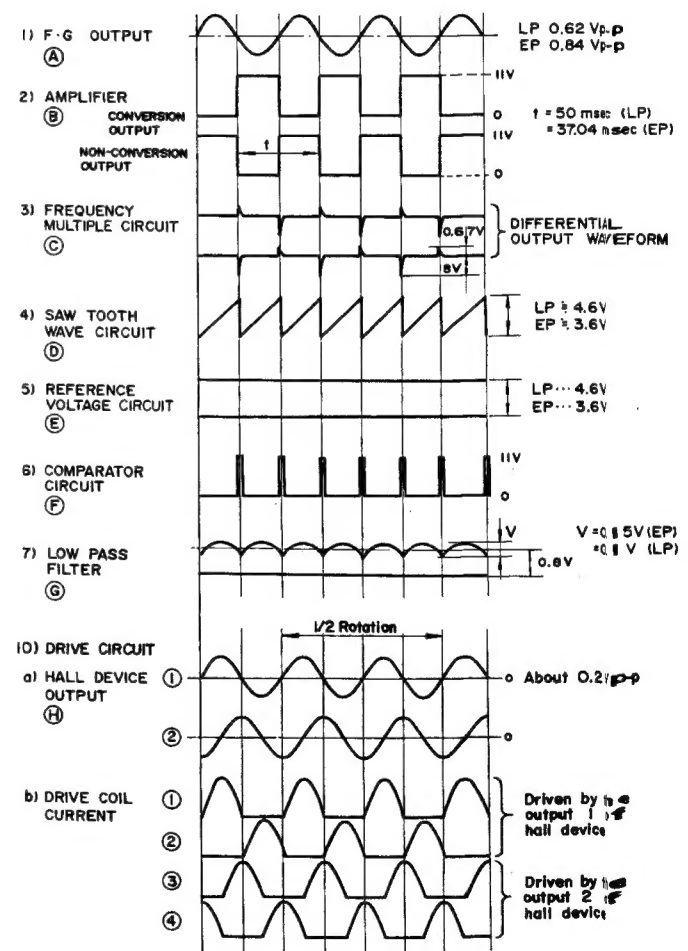


Figure 4-2 WAVE FORMS OF THE CIRCUIT

6) COMPARATOR CIRCUIT

The comparator circuit consists of differential comparator circuit and switching transistor and it is to compare the level of the saw tooth wave 4) and that of reference voltage 5) to each other so that there will be on-off pulses available. off-pulse is obtained when the height of saw tooth wave is lower than the level of reference voltage while on-pulse when the former is higher than the latter: a variation of the frequency (that of the motor's rotation number) is converted into an average variation of the output pulse.

7) LOW-PASS FILTER

The low-pass filter is a 2-stage CR primary low-pass filter that is to have the output pulse of comparator circuit be smoothed.

8) AMPLIFIER CIRCUIT ②

The amplifier circuit is to amplify the output of low-pass filter to apply it to the hall device.

9) POSITION DETECT CIRCUIT

The position detect circuit serves to detect N-pole or S-pole of the rotor magnet by means of hall device so that it can determine the sequence by which 4 drive coils will be given a current one after another. Meanwhile, voltage applied to the hall device is regulated by the control circuit described in the steps 1) to 8) above and output voltage of the hall device is varied according to a variation of the rotation number of motor.

10) DRIVE CIRCUIT

The drive circuit is the one which amplifies the output of hall device to have a current run in the drive coil.

11) FEEDBACK CIRCUIT

The feedback circuit is to carry out a negative feedback operation from the drive circuit to the amplifier circuit ②, thus letting the entire operation of control circuit be more stabilized.

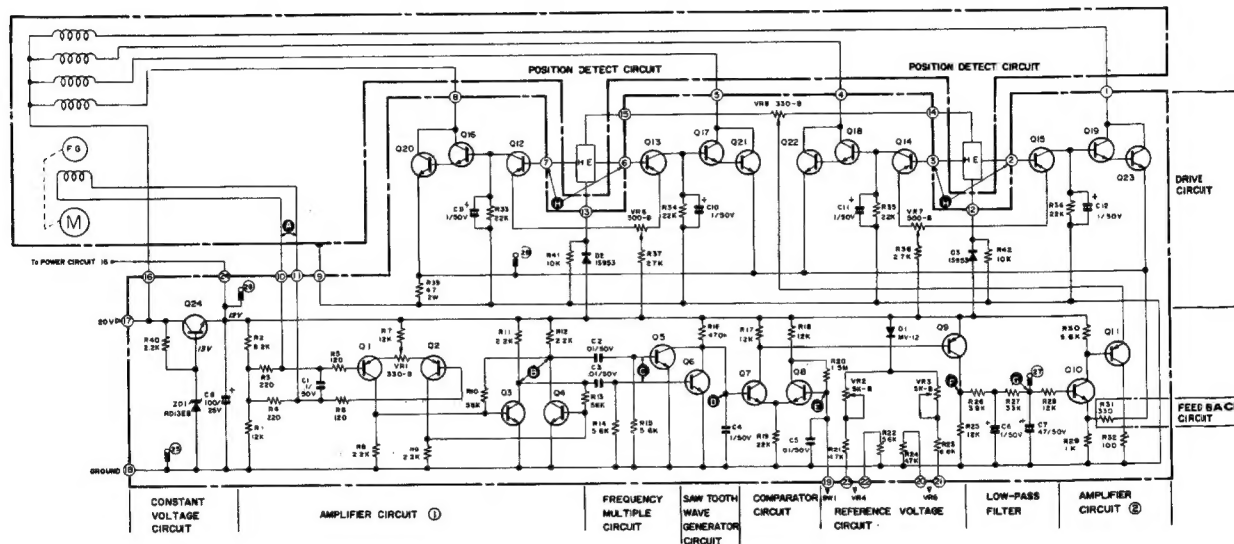


Figure 5-1

CIRCUIT MOTION WHILE THE ROTATION NUMBER BEING VARIED

Circuit Motion while the Rotation Number Being Varied

In which, $N_1 > N_2 > N_3$

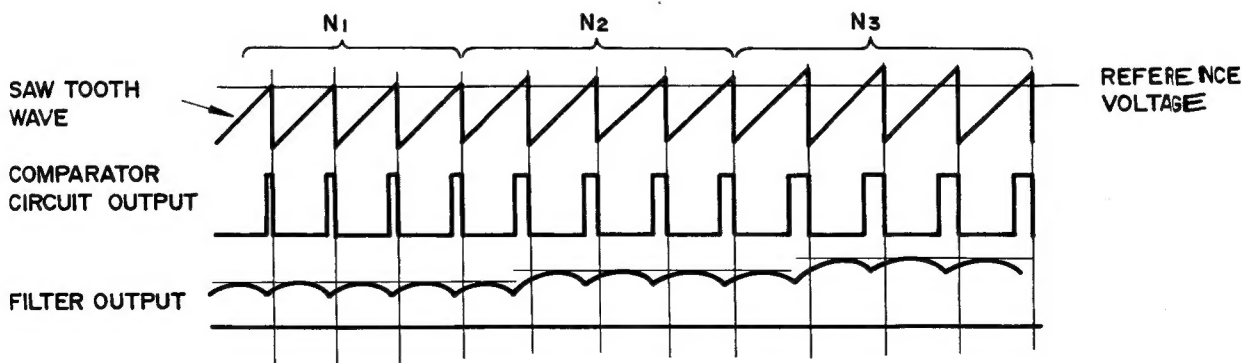


Figure 5-2

ADJUSTMENT OF THE MECHANISM

■ AUTO READ-IN ADJUSTMENT

(Refer to Figure 6-1)

Before the set leaves the factory, descending position of the stylus has been adjusted properly but it may be, however, that under automatic play mode the stylus top end cannot descend on the starting groove correctly because of the adjustment having been deviated due to vibration during the transportation or if a disc record outside the specification is used. If the descending position of the stylus is not correct, adjust the screw provided at the bottom of this unit.

When the stylus descends outside the record periphery, rotate the screw toward 'IN'.

While, when it descends inside the starting groove of the record, rotate the screw toward 'OUT'.

Motion of one graduation of the screw can change the descending position by 1.5mm.

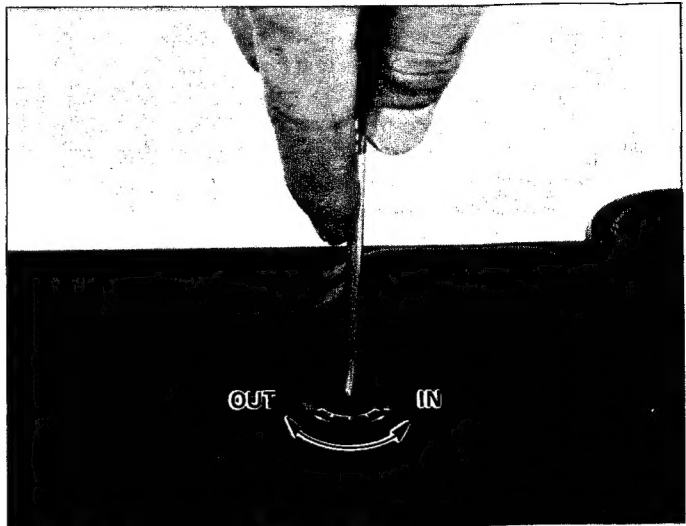


Figure 6-1

■ STYLUS POSITION ADJUSTMENT

(Refer to Figure 6-2)

In the auto return or auto lead-in operation or cueing-up operation, the stylus tends to scratch a record disk surface if its setting height is lower than usual, or it may not descend exactly on the disk surface or hit the dust cover if the height is higher than normal. Therefore, take the following procedures to assure the rated stylus position.

- Positionally arranged the eccentric pin groove of the seesaw lever to direct to its longitudinal direction. See the photo.
- Set the cueing lever at "Up" position and rotate the nut of the elevation shaft to provide a clearance or approx. 8 ± 4 mm between the stylus top and the disk surface.
- Place the unit in "auto lead-in" mode to allow the tonearm to come to above the disk surface, then stop the tonearm and adjust the eccentric pin of the seesaw lever so that a distance between the stylus top and the disk surface becomes 8 ± 4 mm (at the time, keep the cueing lever at "Down" position).

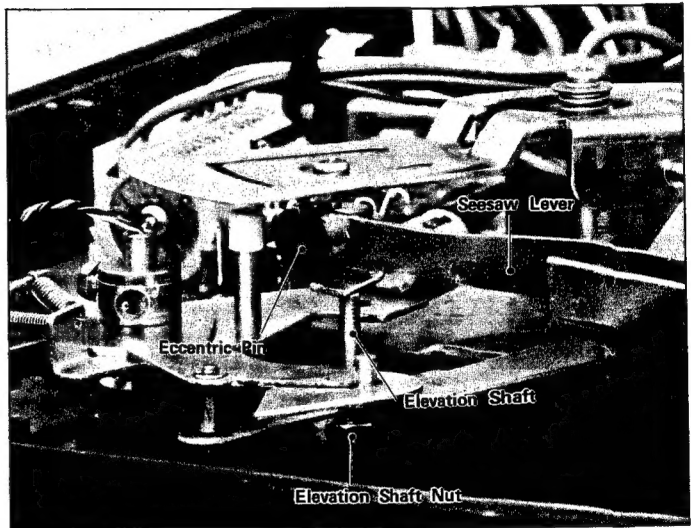


Figure 6-2

■ AUTO RETURN ADJUSTMENT

(Refer to Figure 6-3)

Turn the screw clockwise when return motion is too fast (before end of performance) and turn it counterclockwise when the arm doesn't return even when it has come near the label on the record.

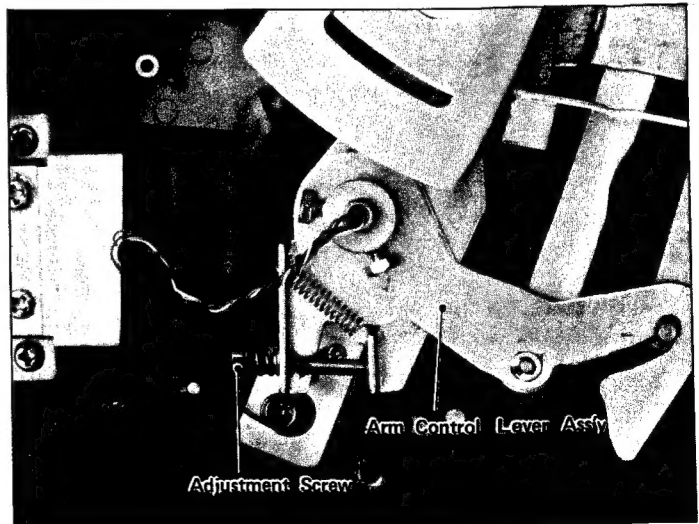


Figure 6-3

ALIGNMENT OF THE CIRCUIT

■ FREQUENCY MULTIPLE ADJUSTMENT

(Refer to Figures 7-1 and 8-3)

1. Connect the oscilloscope to the pins 25 (GND) and 27 (+).
2. Adjust the semi-variable resistor (VR1) so that good waveform indicated in Figure 7-1.

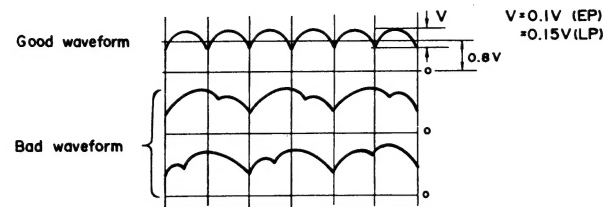


Figure 7-1

■ DRIVE CIRCUIT ADJUSTMENT

1) HALL DEVICE (Refer to Figures 7-2 and 8-2)

1. Connect the oscilloscope to the pins 25 (GND) and 28 (+).
2. Adjust the semi-variable resistor (VR1104) so that good waveform indicated in Figure 7-2.

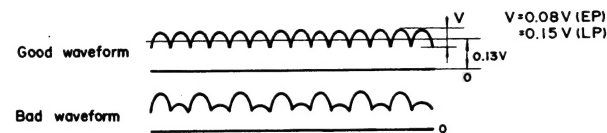


Figure 7-2

2) 4-COIL CURRENT (Refer to Figures 7-3 and 8-2)

1. Connect the oscilloscope to the pins 25 (GND) and 28 (+).
2. Adjust the semi-variable resistors (VR6 and 7) so that good waveform indicated in Figure 7-3.

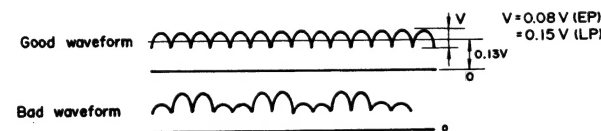


Figure 7-3

■ ADJUSTMENT OF THE MOTOR'S ROTATION

(Refer to Figures 8-1 and 8-2)

The rotational speed of turntable minutely varies according to the hour during a day, therefore, take the following procedures to obtain an exact speed.

1. Turn the speed fine adjustment knob clockwise or anti-clockwise to adjust so that the stripe pattern of a stroboscope provided at the platter looks like stationary. When the stripe pattern is moving in the turning direction of platter, this shows that the rotational speed of turntable is faster than as specified. In this case, adjust it by turning the speed fine adjustment knob toward 's'. Or, when the stripe pattern is moving against the turning direction of platter this shows that the turntable rotates slower than as specified. In such a case, adjust it by turning the speed fine adjustment knob toward 'f'.
2. When the servo-control P.W. board or other electrical parts are replaced for repairing, adjust the turntable speed in the following manner.
 - 1) Set the speed fine adjustment knobs (VR4, VR5) to the central position.
 - 2) Adjust the semi-variable resistors (VR2, VR3) so that the stripe pattern of a stroboscope provided at the platter looks like stationary.

VR2 For 33-1/3 r.p.m. Adjust
VR3 For 45 r.p.m. Adjust

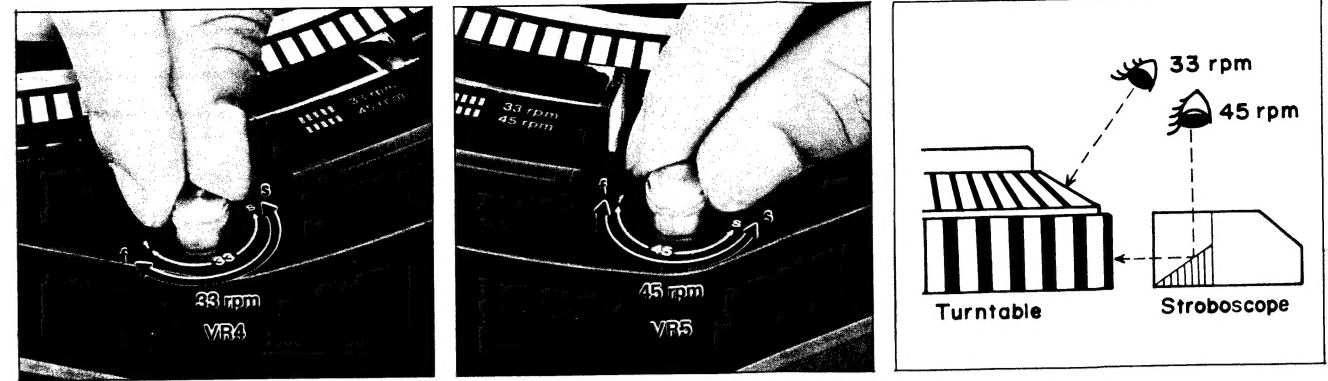


Figure 8-1

- VR1 : Frequency Multiple Circuit Adjust
- VR2 : Turntable Speed Adjust (33-1/3rpm)
- VR3 : Turntable Speed Adjust (45rpm)
- VR4 : Turntable Speed Fine Adjust (33-1/3rpm)
- VR5 : Turntable Speed Fine Adjust (45rpm)
- VR6 : 4 Coil Current Adjust
- VR7 : 4 Coil Current Adjust
- VR8 : Hall Device Adjust
- VR101 : Stroboscope Frequency Adjust

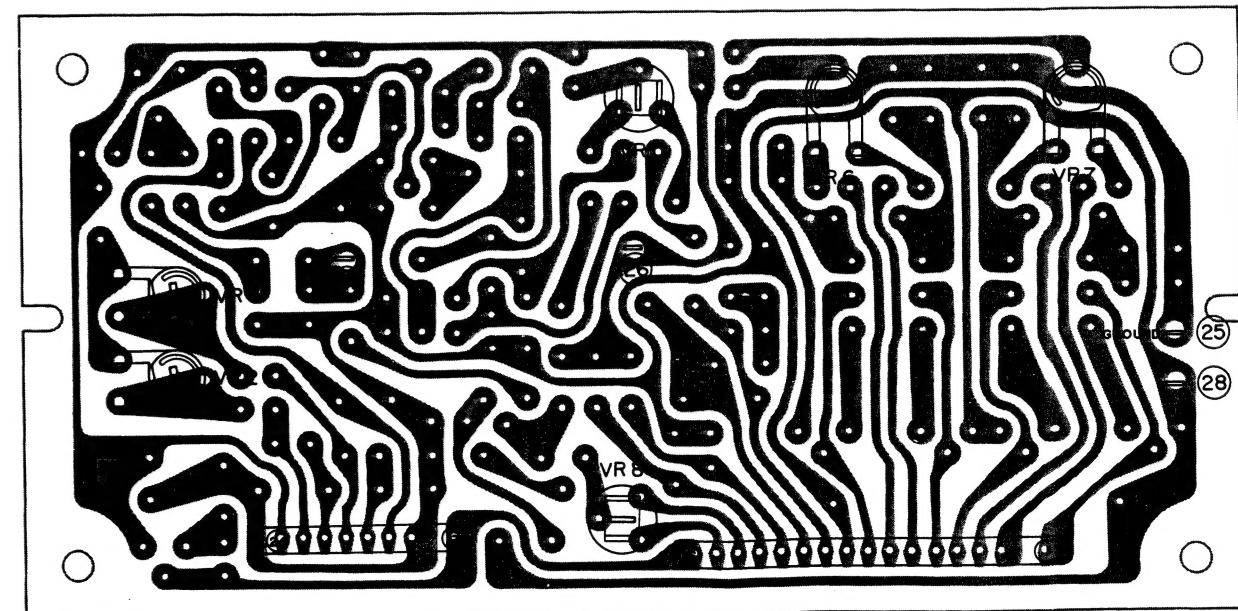
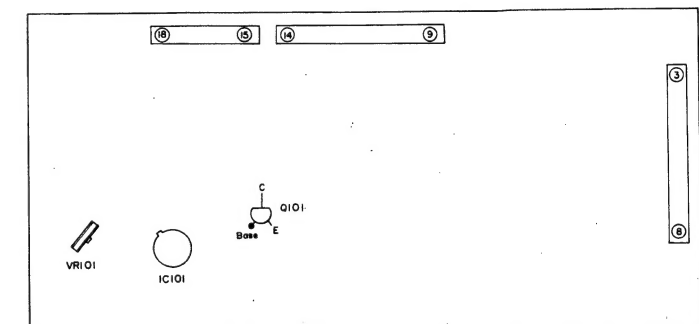
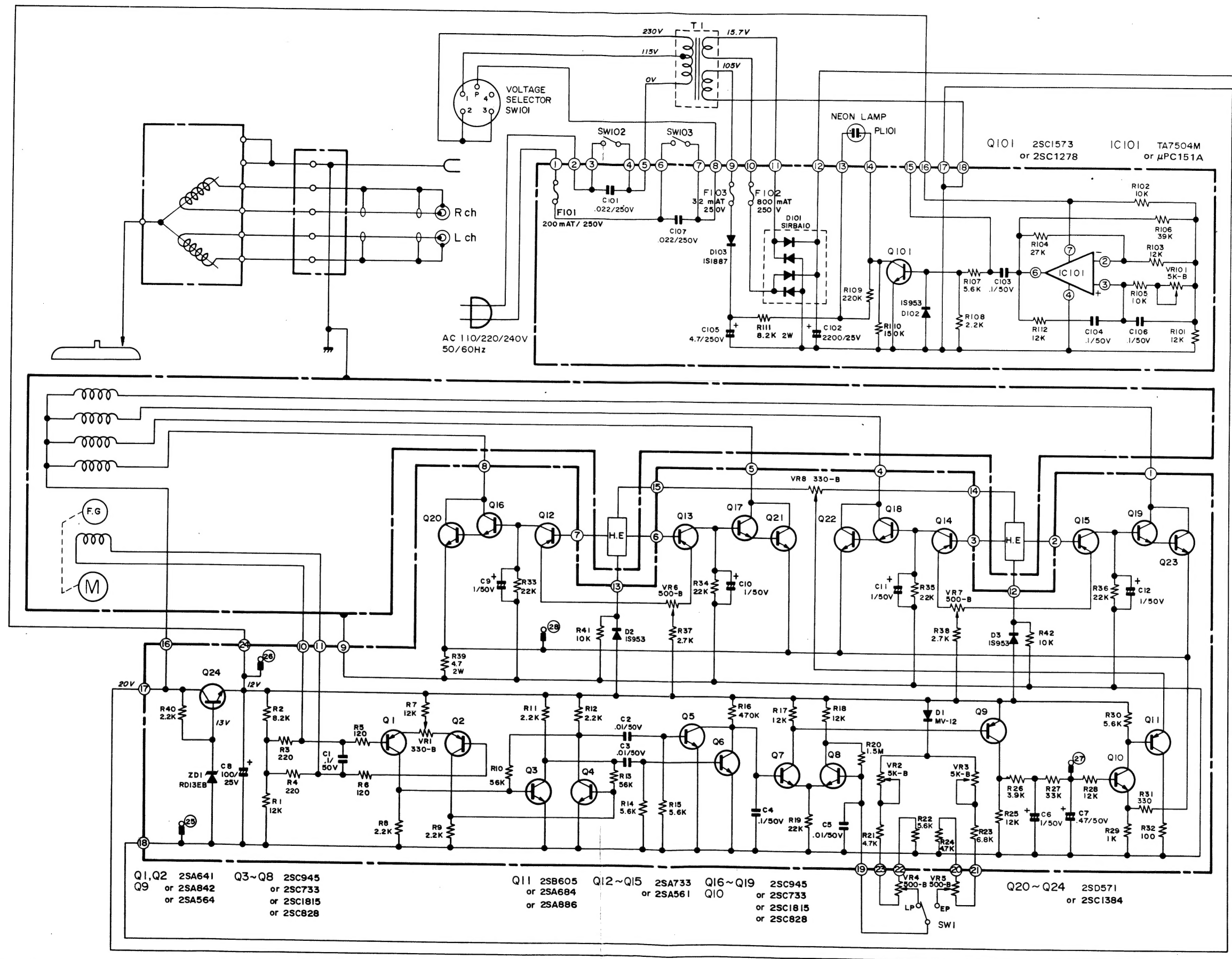


Figure 8-2 ALIGNMENT POINT



(Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.)

Figure 9-1 SCHEMATIC DIAGRAM

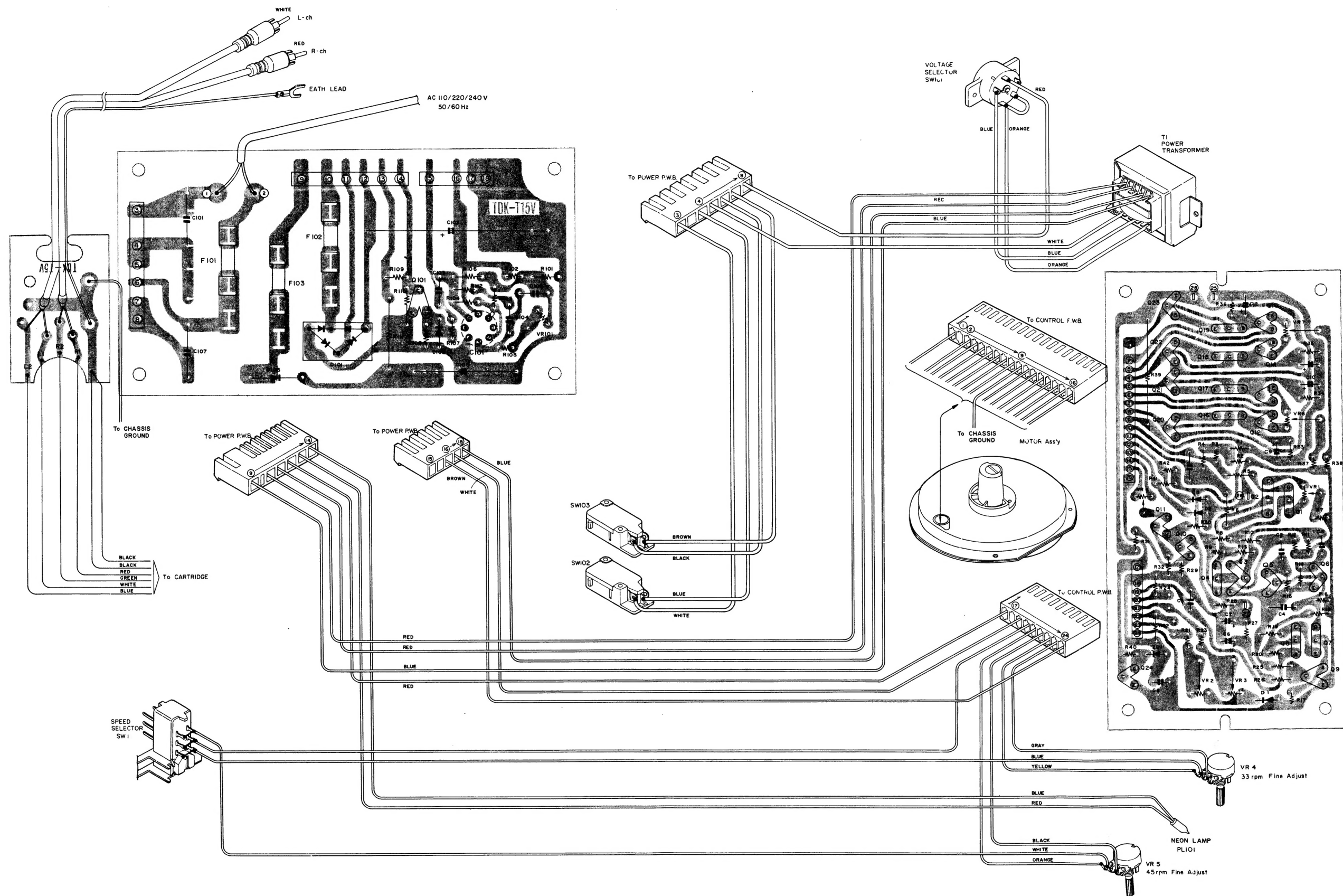


Figure 11-1 WIRING SIDE OF P.W. BOARD

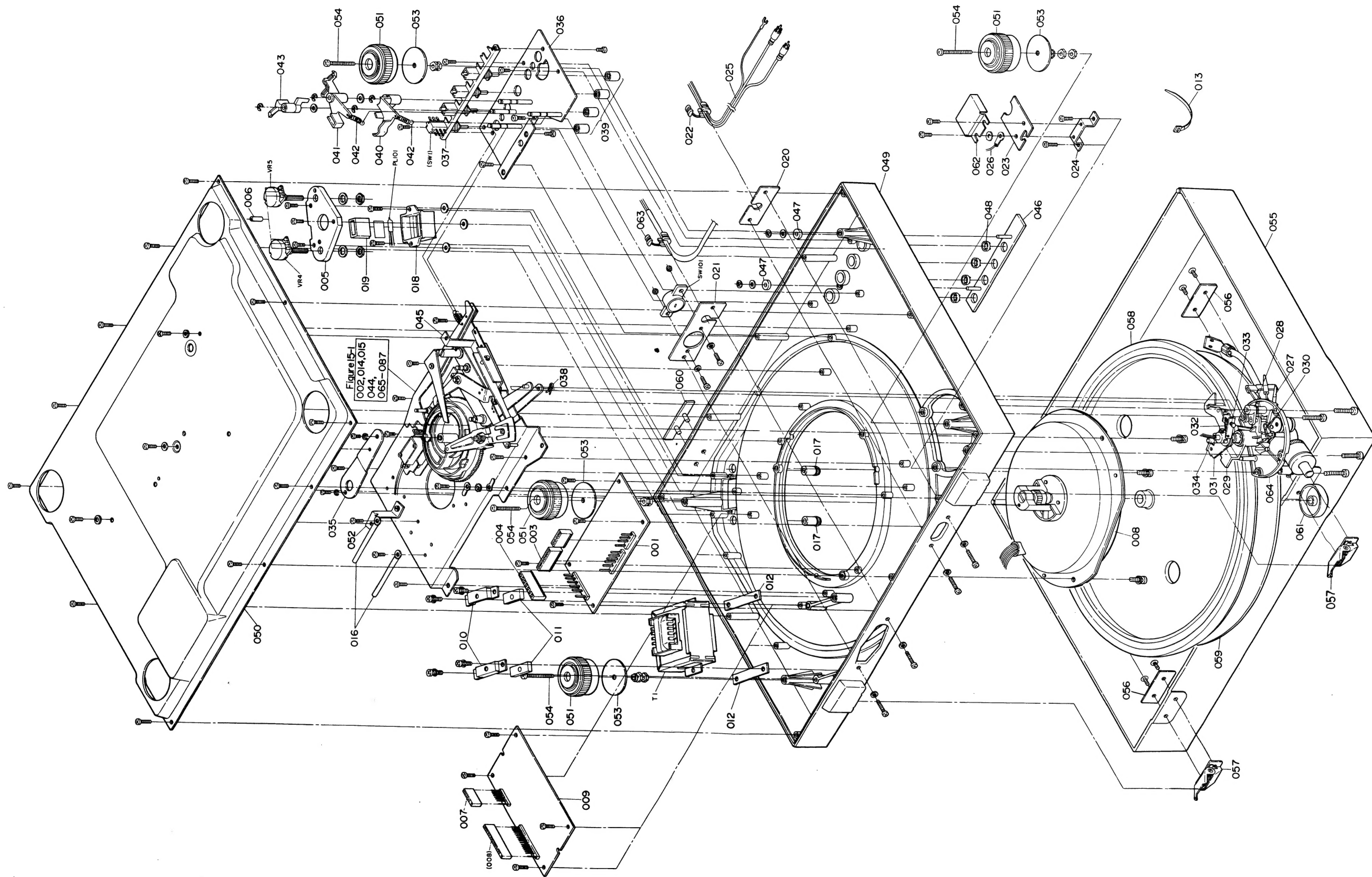


Figure 13-1 PLAYER EXPLODED VIEW (Cabinet)

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

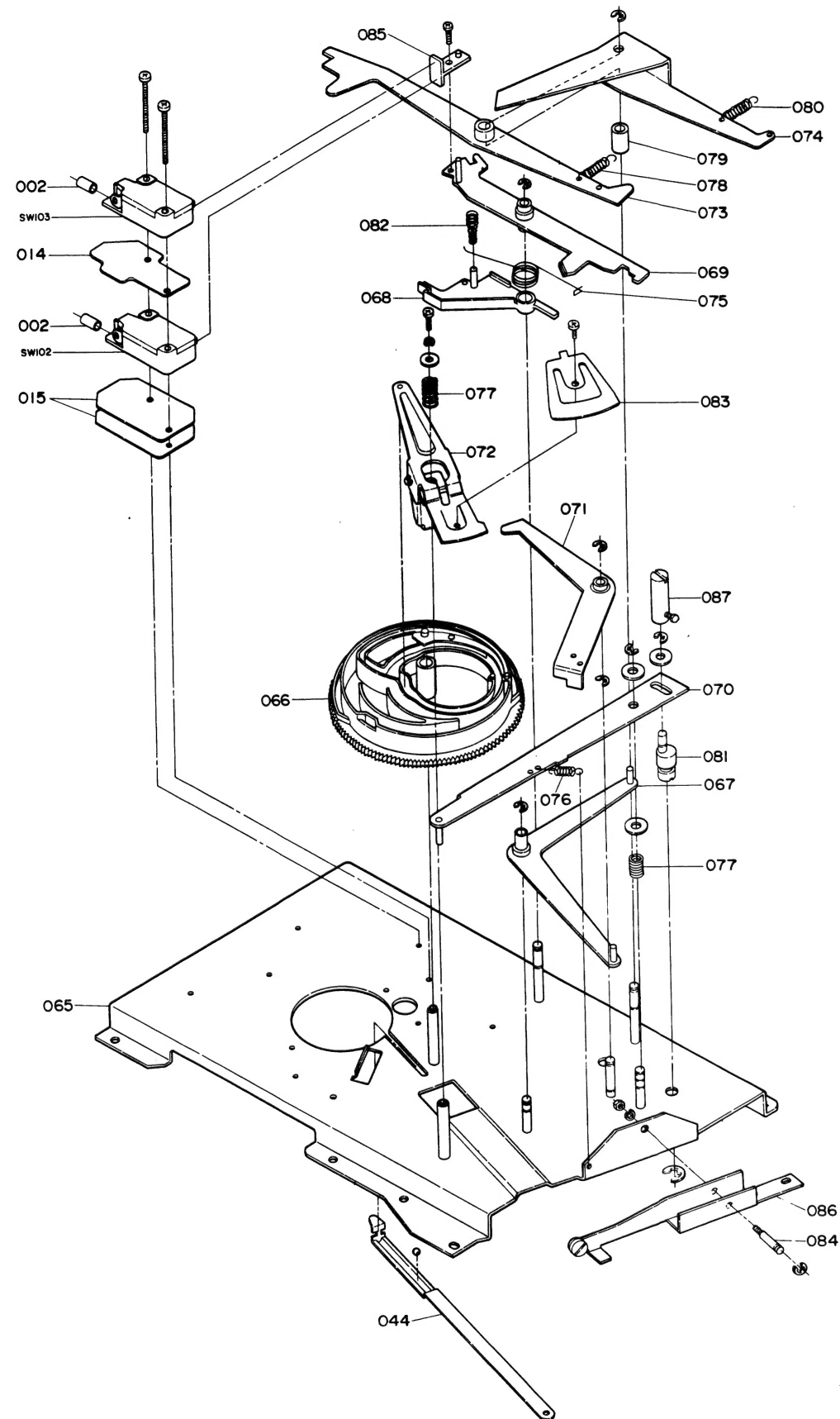


Figure 15-1 PLAYER EXPLODED VIEW (Sub-Chassis)

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
INTEGRATED CIRCUIT				VR2	91Z5KOHMB	5K ohm (B), Turntable Speed Adjust (33-1/3 r.p.m.)	**
IC101	91ZμPC151A	OP Amp (μPC151A)	**	VR3	91Z5KOHMB	5K ohm (B), Turntable Speed Adjust (45 r.p.m.)	**
Note:	or 91ZTA7504M			VR4	91Z702986	500 ohm (B), Turntable Speed Fine Adjust (33-1/3 r.p.m.)	**
TRANSISTORS				VR5	91Z702986	500 ohm (B), Turntable Speed Fine Adjust (45 r.p.m.)	**
Q1, Q2	91Z2SA641	Amplifier (1) (2SA641)	**	VR6, VR7	91Z500OHMB	500 ohm (B), 4 Coil Current Adjust	**
Q3, Q4	91Z2SC945	Amplifier (1) (2SC945)	**	VR8	91Z330OHMB	330 ohm (B), Hall Device Adjust	**
Q5	91Z2SC945	Frequency Multiple Circuit (2SC945)	**	VR101	91Z5KOHMB	5K ohm (B), Stroboscope Frequency Adjust	**
Q6	91Z2SC945	Saw Tooth Wave Generator (2SC945)	**	CAPACITORS			
Q7, Q8	91Z2SC945	Comparator Circuit (2SC945)	**	C1	VCQYKU1HM104K	.1MFD, 50V, ±10%, Mylar	**
Q9	91Z2SA641	Comparator Circuit (2SA641)	**	C2, C3	VCQYKU1HM103K	.01MFD, 50V, ±10%, Mylar	**
Q10	91Z2SC945	Amplifier (2) (2SC945)	**	C4	VCQYKU1HM104K	.1MFD, 50V, ±10%, Mylar	**
Q11	91Z2SB605	Amplifier (2) (2SB605)	**	C5	VCQYKU1HM103K	.01MFD, 50V, ±10%, Mylar	**
Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q20, Q21, Q22, Q23	91Z2SA733	Drive Circuit (2SA733)	**	C6	VCEALU1HC105M	1MFD, 50V, ±20%, Electrolytic	**
Q24	91Z2SD571	Drive Circuit (2SD571)	**	C7	VCEALU1HW474M	.47MFD, 50V, ±20%, Electrolytic	**
Q101	91Z2SC1278	Driver, Neon Lamp (2SC1278)	**	C8	VCEAAU1EW106Y	100MFD, 25V, +50-10%, Electrolytic	**
Note:				C9, C10, C11, C12	VCEAAU1HW105A	1MFD, 50V, +75-10%, Electrolytic	**
Q1, Q2, Q9	or 91Z2SA842, 91Z2SA564			C101	91ZRIFAPME271Y	.022MFD, 250V	**
Q3 - Q8	or 91Z2SC733			C102	VCEAAU1EW228Y	2200MFD, 25V, +50-10%, Electrolytic	**
Q11	or 91Z2SA684, 91Z2SA886			C103, C104	VCQYKU1HM104K	.1MFD, 50V, ±10%, Mylar	**
Q12 - Q15	or 91Z2SA561			C105	VCEAAU2EW475Y	4.7MFD, 250V, +50-10%, Electrolytic	**
Q10, Q16 - Q19	or 91Z2SC733			C106	VCQYKU1HM104K	.1MFD, 50V, ±10%, Mylar	**
Q20 - Q24	or 91Z2SC1384			C107	91ZR1FAPME271Y	.022MFD, 250V	**
Q101	or 91Z2SC1573			RESISTORS			
DIODES				(Unless otherwise specified resistors are 1/4W, ±5%, Carbon type.)			
D1	91ZMV-12	Reference Voltage Circuit (MV-12)	**	R1	VRD-SU2EY123J	12K ohm	**
D2, D3	91Z1S953	Drive Circuit (1S953)	**	R2	VRD-SU2EY822J	8.2K ohm	**
D101	91ZSIRBA10	Rectifier (S1RBA10)	**	R3, R4	VRD-SU2EY221J	220 ohm	**
D102	91Z1S953	Neon Lamp Drive Circuit (1S953)	**	R5, R6	VRD-SU2EY121J	120 ohm	**
D103	91Z1S1887	Rectifier (1S1887)	**	R7	VRD-SU2EY123J	12K ohm	**
ZD1	91ZRD13E(B)	Constant Voltage Circuit (RD13EB)	**	R8, R9	VRD-SU2EY222J	2.2K ohm	**
TRANSFORMER				R10	VRD-SU2EY563J	56K ohm	**
T1	91Z871324	Power	**	R11, R12	VRD-SU2EY222J	2.2K ohm	**
CONTROLS				R13	VRD-SU2EY563J	56K ohm	**
VR1	91Z330OHMB	330 ohm, (B), Frequency Multiple Circuit Adjust	**	R14, R15	VRD-SU2EY562J	5.6K ohm	**
				R16	VRD-SU2EY471J	470K ohm	**
				R17, R18	VRD-SU2EY123J	12K ohm	**
				R19	VRD-SU2EY223J	22K ohm	**
				R20	VRD-SU2EY155J	1.5 Meg ohm	**
				R21	VRD-SU2EY472J	4.7K ohm	**
				R22	VRD-SU2EY562J	5.6K ohm	**
				R23	VRD-SU2EY682J	6.8K ohm	**
				R24	VRD-SU2EY472J	4.7K ohm	**

** : Price will be quoted upon receipt of order.

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
R25	VRD-SU2EY123J	12K ohm	**	034	91Z891452-1	Friction Rubber	**
R26	VRD-SU2EY392J	3.9K ohm	**	035	91Z895585	Plate, Main Gear	**
R27	VRD-SU2EY333J	33K ohm	**	036	91Z871208	Bracket, Operation	**
R28	VRD-SU2EY123J	12K ohm	**	037	91Z871209	Push Switch Ass'y	**
R29	VRD-SU2EY102J	1K ohm	**	038	91Z891092	Pin, Auto Return Arm	**
R30	VRD-SU2EY562J	5.6K ohm	**	039	91Z895688	Button, Push Switch	**
R31	VRD-SU2EY331J	330 ohm	**	040	91Z895588	Lever, Reject	**
R32	VRD-SU2EY101J	100 ohm	**	041	91Z895589	Lever, Start	**
R33, R34, R35, R36, R37, R38	VRD-SU2EY223J	22K ohm	**	042	91Z891443	Spring, Start Lever	**
R39	VRD-SU2EY222J	2.2K ohm	**	043	91Z895590	Lever, Repeat	**
R40	VRD-SU2EY103J	10K ohm	**	044	91Z870066	Arm, Auto Return	**
R41, R42	VRD-SU2EY103J	10K ohm	**	045	91Z892809-1	Bracket, Bottom Cover Retaining	**
R101	VRD-SU2EY123J	12K ohm	**	046	91Z895586	Operation Plate	**
R102	VRD-SU2EY103J	10K ohm	**	047	91Z892940-1	Rubber	**
R103	VRD-SU2EY123J	12K ohm	**	048	91Z895587	Ring, Operation Plate	**
R104	VRD-SU2EY273J	27K ohm	**	049	91Z846367-4	Cabinet	**
R105	VRD-SU2EY103J	10K ohm	**	050	91Z846368-2	Bottom Cover	**
R106	VRD-SU2EY393J	39K ohm	**	051	91Z896387	Leg	**
R107	VRD-SU2EY562J	5.6K ohm	**	052	91Z890238-6	Bracket, Bottom Cover Retaining	**
R108	VRD-SU2EY222J	2.2K ohm	**	053	91Z895691	Plate, Leg	**
R109	VRD-SU2EY224J	220K ohm	**	054	91Z895967	Screw, Leg Retaining	**
R110	VRD-SU2EY154J	150K ohm	**	055	91Z851097-3	Dust Cover	**
R111	VRD-SU2EY123J	12K ohm	**	056	91Z895231	Plate, Hinge	**
R112	VRD-SU2EY123J	12K ohm	**	057	91Z895215	Hinge Ass'y	**
				058	91Z620026	Turntable	**
				059	91Z871160	Sheet, Turntable	**
				060	HBDGD3054AFSA	Badge, OPTONICA (91Z893820)	AC
				061	91Z890876	EP Adaptor	**
				062	91Z895218	Shield, Output P.W. Board	**
				063	91Z891568-2	Bushing, Mains Supply Cord (BS)	**
					91Z891568-3	Bushing, Mains Supply Cord (KEMA)	**
				064	91Z851319-1	Pick-up Ass'y (Without Cartridge)	**
				065	91Z851227	Sub-chassis Ass'y	**
				066	91Z870317	Main Gear Ass'y	**
				067	91Z891431	Switching Lever Ass'y	**
				068	91Z891951	Clutch Lever Ass'y	**
				069	91Z891016-1	Switching Lever Ass'y	**
				070	91Z891435	Select Arm Ass'y	**
				071	91Z891437	Select Guide Lever Ass'y	**
				072	91Z870172	Rotation Plate Ass'y	**
				073	91Z870157	Start Lever Ass'y	**
				074	91Z891444	Lever, Repeat	**
				075	91Z891474	Spring, Clutch Lever	**
				076	91Z891438	Spring, Select Arm	**
				077	91Z891475	Spring, Safety	**
				078	91Z891443	Spring, Start Lever	**
				079	91Z891445	Bushing	**
				080	91Z893566	Spring, Repeat Lever	**
				081	91Z895720	Shaft, Eccentric	**
				082	91Z891947	Spring, Clutch Lever	**
				083	91Z891022	Spring, Rotation Plate	**
				084	91Z890095	Shaft, See-saw Lever	**
				085	91Z894937	Tip, Switching Lever	**
				086	91Z891785	See-saw Lever Ass'y	**
				087	91Z895721	Screw, Auto Read-in Mechanism Adjust	**
				F101	QFS-C201CAGNI	200mAT/250V	**
				F102	QFS-C801CAGNI	800mAT/250V	**
				F103	QFS-C320CAGNI	32mAT/250V	**
				PL101	91Z895757	Neon Lamp	**

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
SW1	Not available	Speed Selector Switch	N-A		QACCV0001AGZZ	Mains Supply Cord (KEMA) (91Z892280)	AP
SW101	QSOCE0551AFZZ	Switch, Voltage Selector (91Z871207)	AG		TINSL0138AFZZ	Operation Manual	**
SW102, SW103	91Z895430-1	Switch, Power	**		TTAGH0058AFZZ	Tag	**
	QACCB0052AF09	Mains Supply Cord (BS) (91Z895961)	AM				